

EXECUTIVE SUMMARY

The California Energy Commission staff has prepared this Final Staff Assessment (FSA) for the Salton Sea Unit 6 geothermal power project. The FSA has been divided into two parts. This report is Part 1 and contains staff's analysis and recommendations for all technical areas except Air Quality and Alternatives. These two sections will be published at a later date. (See discussion in the Overview of Staff's Conclusions below.)

On July 26, 2002, CE Obsidian Energy LLC (CEOE, project owner) filed an Application for Certification (AFC), for its proposed Salton Sea Unit 6 geothermal project (SSU6) with the California Energy Commission seeking approval to construct and operate a 185 megawatt (MW) geothermal steam-powered electric generating facility. The plant would be owned and operated by CEOE. The Energy Commission determined the application to be data adequate on September 25, 2002. This determination initiated staff's independent analysis of the proposed project.

The SSU6 and related facilities, including the electric transmission lines, and water supply pipeline are under the Energy Commission's jurisdiction. For geothermal power projects, the Energy Commission evaluates all aspects of the project but the licensing of the geothermal production and injection wells occurs through permitting by the Department of Conservation, Division of Oil Gas and Geothermal Resources (DOGGR), and the well pads and brine pipelines are permitted by Imperial County (Public Resources Code section 25120). Both agencies intend to use the Energy Commission's Decision as the CEQA document for their respective actions.

As a result of its analysis, Energy Commission staff has developed conditions of certification that mitigate impacts of the project. Where impacts of the project may occur from facilities licensed by other agencies, staff developed conditions of certification that are recommended to those agencies for inclusion in their respective permits based upon this FSA.

This FSA is not the decision document for these proceedings nor does it contain findings of the Energy Commission related to environmental impacts or the project's compliance with local, state, and federal legal requirements. The FSA will serve as staff's testimony in evidentiary hearings to be held by the Committee of two Commissioners who are hearing this case. The Committee will hold evidentiary hearings and will consider the recommendations presented by staff, the project owner, all parties, government agencies, and the public prior to proposing its decision. The Energy Commission will make the final decision, including findings, after the Committee's publication of its proposed decision.

PROJECT LOCATION AND DESCRIPTION

The project area of the proposed Salton Sea Unit 6 project is located near the southeast shore of the Salton Sea, is within the unincorporated area of Imperial County, California, and is located approximately 6 miles north of Calipatria, on an 80-acre portion of a 160 acre agricultural parcel owned by the CEOE. The parcel is bounded by McKendry Road

on the north, Peterson Road on the south, Severe Road on the west and Boyle Road to the east. The site is approximately 1,000 feet from the southern end of the Sonny Bono Salton Sea National Wildlife Refuge. Lying within the Salton Sea Known Geothermal Resource Area (KGRA), the project is within a two-mile radius of nine operating geothermal power projects. A more complete description of the project is contained in the **PROJECT DESCRIPTION** section of this FSA and includes figures depicting the regional setting, transmission line routes, wells and pads, brine pipelines, water pipeline and the proposed plant configuration.

The SSU6 would consist of a geothermal steam power plant, associated water supply, production and reinjection wells and pads, brine pipelines, two 161 kV transmission lines that would connect at two locations in the Imperial Irrigation District's (IID) transmission system, the L-Line (IID designates many of their transmission lines with letter designations) to the southwest, and the Midway substation to the east. A new switchyard, located approximately 12.5 miles from the project site on Bannister Road, would facilitate the L-Line interconnection. Approximately 31 miles of new single-circuit transmission lines would be constructed.

The SSU6 project has infrastructure elements unique to a geothermal project including a geothermal Resource Production Facility (RPF), geothermal-steam Power Generation Facility (PGF), production and injection wells and pads, above-ground brine pipelines, a brine-waste solids handling system, and unique emissions characteristics.

The SSU6 includes a high efficiency condensing steam turbine with a net plant output of 185 MW. Normally, the facility would be operated in a base load mode: 8,000 hours per year or more. The renewable energy project is designed to supply capacity and energy to California's electric market with over 85 percent of the plant output contracted to the IID for a 20 year period following project completion.

The SSU6 air emissions are quite different from those of a natural gas-fired plant. Except for drilling and ancillary equipment, NO_x and SO_x are not emitted, but there will be emissions of ammonia and hydrogen sulfide (H₂S). Both ammonia and H₂S are non-compressible gasses contained in the geothermal brine. The ammonia emissions, though not a regulated emission, are of concern as a PM₁₀ precursor. The project owner proposes to purchase PM₁₀ emission credits through the Imperial County Air Pollution Control District (ICAPCD). To control emissions and impacts of H₂S, the project owner proposes to install bio-oxidizers on the cooling towers of SSU6 and retrofit the cooling towers at an existing facility. Part 2 of the FSA will contain staff's analysis of the air quality impacts of the project and proposed mitigation measures.

PUBLIC AND AGENCY COORDINATION

The Energy Commission's SSU6 Committee conducted an Informational Hearing and Site Visit on November 19, 2002. The Energy Commission also heard testimony regarding the sufficiency of the geothermal resources for support of the project through its projected 30-year life. The hearing provided a forum for the public to learn about the project, the Energy Commission's siting process, and to raise their questions and concerns about the proposed power plant. In addition, publicly noticed data response workshops were held on January 8 and 9, 2003 in Calipatria, and on February 27, 2003

in Sacramento. The Preliminary Staff Assessment was published April 14, 2003 with workshops held on May 14 and 15, 2003 in El Centro, and by phone on June 4, 2003.

Staff coordinated their review with: the Imperial County Air Pollution Control District (ICAPCD), the Imperial County Planning/Building Department, the U.S. Bureau of Land Management (BLM), U.S. Fish and Wildlife Service (USFWS), the U.S. Army Corps of Engineers (ACOE), the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR), the California Department of Fish and Game (CDFG) and the Colorado River Basin Regional Water Quality Control Board (RWQCB). The FSA provides agencies and the public an opportunity to review the Energy Commission staff's analysis of the proposed project. The ACOE and the BLM have federal jurisdictional authority and must take certain actions to permit certain aspects of the project. ACOE has already taken their action permitting fill of a small portion of degraded wetland necessary for construction of a brine pipeline from OB-1, the production well pad located at Obsidian Butte, to the project site, and evaluating the proposed site of the Bannister Road switchyard to be constructed by IID. BLM must amend the California Desert Conservation Act (CDCA) Plan to allow a transmission line corridor across a portion of BLM land and has initiated that process. BLM, acting as the federal lead agency, is also reviewing the entire project and has requested a Biological Opinion from the USFWS regarding potential impacts and proposed mitigation for threatened and endangered species within the project sphere of influence. Due to the potential for soil contamination at the project site, staff has also coordinated with the California Department of Toxic Substances Control.

STAFF'S ASSESSMENT

Each technical area section of this FSA contains a discussion of impacts, staff's conclusions and recommendations, and, where appropriate, mitigation measures and conditions of certification. The FSA includes staff's assessments of:

- the environmental setting of the proposal;
- impacts on public health and safety and measures proposed to mitigate these impacts;
- environmental impacts and measures proposed to mitigate these impacts;
- the engineering design of the proposed facility and engineering measures proposed to ensure the project can be constructed and operated safely and reliably;
- project closure;
- project alternatives;
- compliance of the project with all applicable laws, ordinances, regulations and standards (LORS) during construction and operation; and
- proposed conditions of certification, including those conditions recommended to other agencies for inclusion in their permits for SSU6.

The following table summarizes the technical areas analyzed in Part 1 indicating levels of impact, LORS compliance and whether conditions of certification are recommended to other agencies for consideration. With the proposed conditions of certification the

project's environmental impacts can be mitigated to levels of less than significance, and the project would conform to all LORS. Additional detail is contained within each technical area analysis.

Air Quality and Alternatives are listed as "not complete" at this time. The project owner is planning to use H₂S offsets obtained from retrofitting the cooling towers of the nearby Leathers power plant with bio-oxidizer boxes similar to those planned for use on the project. The expectation is that H₂S reductions of at least 90 percent will be achieved through this application, providing the necessary offsets for the SSU6 project.

Verification of this efficiency and determination of the applied offsets await the results of emissions verification testing at the Leathers facility. To further reduce emissions, a polishing system will be employed using a solid bed H₂S removal scavenger system. While a formal source test is expected to be completed by late August, 2003, the APCD issued its Final Determination of Compliance for public comment July 25, 2003. Staff plans to review the FDOC as well as the proposed changes in modeling and mitigation strategies, and will provide its analysis and recommendations for impact mitigation in Part 2 of the FSA by early September 2003.

Staff is working with the Imperial County Planning/Building Department to coordinate the review and permitting of the SSU6 well pads and brine pipelines, and to assist in CEQA compliance for the project. DOGGR has also indicated their intent to use the Energy Commission Decision as the environmental document for their well permitting actions.

**ENVIRONMENTAL IMPACTS, LORS CONFORMANCE, AND CONDITIONS
RECOMMENDED TO OTHER AGENCIES**

Technical Discipline	Environmental/ System Impact	LORS Conformance	Conditions Recommended To Other Agencies
Air Quality	Not complete	Not complete	Not complete
Biological Resources	Impacts mitigated	Yes	Yes
Cultural Resources	Impacts mitigated	Yes	Yes
Power Plant Efficiency	No impact	N/A	NA
Power Plant Reliability	No impact	N/A	NA
Facility Design	No impact	Yes	No
Geology/Paleontology	Impacts mitigated	Yes	Yes
Hazardous Materials	Impacts mitigated	Yes	No
Land Use	Impacts mitigated	Yes	No
Noise	Impacts mitigated	Yes	Yes
Public Health	Impacts mitigated	Yes	No
Socioeconomics	Impacts mitigated	Yes	No
Traffic and Transportation	Impacts mitigated	Yes	No
Transmission Line Safety	No Impact	Yes	No
Transmission System Engineering	Impacts mitigated	Yes	No
Visual Resources	Impacts mitigated	Yes	No
Waste Management	Impacts mitigated	Yes	No
Water and Soils	Impacts mitigated	Yes	Yes
Worker Safety	Impacts mitigated	Yes	No

OUTREACH AND ENVIRONMENTAL JUSTICE

The Energy Commission Public Adviser's Office has continued to solicit and support public input for the SSU6. A Spanish/English bilingual project description describing the project, explaining the process and providing contact information was prepared. Copies of the AFC were distributed to the El Centro and Calipatria libraries and, in addition to the project description flyers, posters were prepared announcing the project for those locations. Additionally, 1,400 bilingual project description flyers were distributed to homes through the Calipatria Unified School District. An additional 5,000 flyers were sent to the Imperial Valley Press for distribution. The Public Adviser also participated in the Informational Hearing and Site Visit in Calipatria on November 19, 2002, and at the Preliminary Staff Assessment Workshop held in El Centro on May 14 and 15, 2003. The Public Adviser continues to respond to requests for information from the public and provide referrals to staff.

Staff's environmental justice approach includes providing notice (in appropriate languages) to the public, including minority and/or low income communities, of the proposed project and opportunities for participation in public workshops. Analysis of potential environmental justice impacts includes assessing the minority population and low income economic status in an area within a 6-mile radius of the project.

Presentation and analysis of demographic and economic information is contained in the **SOCIOECONOMICS** section of this FSA. The environmental justice analysis includes assessment of potential impacts in the following technical areas because an environmental justice population occurs within the 6-mile radius of the SSU6: air quality, public health, hazardous materials, land use, traffic, water resources, waste management, visual resources, noise, and transmission line safety and nuisance.

Staff has reviewed Census 2000 information that shows the minority population is greater than fifty percent within a six-mile radius of the proposed SSU6 Project (please refer to **Socioeconomics Figure 1** in this document), and Census 2000 information that shows the low-income population is less than fifty percent within the same radius. Based on this analysis, staff for affected technical areas except air quality have identified no significant direct or cumulative impacts resulting from the construction or operation of the project, and therefore there are no environmental justice issues related to this project.